Appendix C – Cumulative Effects

According to the Council on Environmental Quality (CEQ) NEPA regulations, "cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions (40 CFR § 1508.7).

In order to understand the contribution of past actions to the cumulative effects of the Proposed Action and alternatives, this analysis, with the exception of hydrology relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the Proposed Action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one cannot reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions may ignore the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, "agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions." For these reasons, the analysis of past actions in this section is based on current environmental conditions.

Blacksmith Project Planning Area (51,594) — the boundary was used to assess impacts that extend beyond areas of actual treatment but do not extend outside the assessment area. The effects considered at this level include snags, down wood levels, seral stage distribution, road density and condition, archeological sites, noxious weed presence and fuel loading. Wildlife and watershed cumulative effects in some cases extend beyond these boundaries and are addressed in the resource specialist report for the project. Impacts discussed below for activities within the project planning area are applicable to expand out and discuss impacts from similar activities in these cumulative effect assessment areas.

Current Management and Ongoing Activities

Even if no activities were being proposed under the Blacksmith project, certain management would continue in the area because of past decisions and current land management policies. Such activities that may be considered as appropriate in the cumulative effects analysis include:

- Fuels Reduction and forest health projects including: the Big Grizzly Forest Health and Fuels Reduction Project;
- Personal use firewood gathering consisting of salvage of individual dead trees by the public under a firewood permit system;
- Mining claim activities;

- Recreation including hiking, motorized recreation on designated trails, horseback riding, fishing, camping, driving, hunting, and dispersed camping;
- Activities on private lands within the assessment area;
- Standard levels of maintenance on Forest Service roads and trails;
- Suppression of human-caused fire starts and wildfires under the jurisdiction of the U.S. Forest Service or the California Department of Forestry and Fire Protection.
- Management of Noxious Weeds – Weed Eradication and Control on the Eldorado National Forest is intended to direct priorities for treatment of noxious weeds across the Forest with a variety of treatment methods including hand treatments and herbicide treatments..

Reasonably Foreseeable Activities

The following reasonably foreseeable actions and management are considered in the cumulative effects analysis in this chapter, as appropriate for each resource analyzed.

Timber harvest on private lands – Two known Timber Harvest Plans (THPs), are under preparation in the area. These in addition to timber harvests plans approved by CalFire have been analyzed in this analysis. (http://www.fire.ca.gov/resource_mgt/resource_mgt_forestpractice_thpstatus.php last visited 1/29/2013).

Table C 1. Present and future foreseeable projects within the project planning area.

Project Name	Activity
PG&E transmission line maintenance	The routine cutting of hazard trees that may threaten the lines and the periodic treatment of vegetation growing in the transmission line corridor.
Fuelwood Gathering	Gathering of dead trees less than 10 inches diameter at eye level and downed material
Invasive Plant Eradication	A combination of herbicide and hand treatments to reduce non-native invasive plants. Areas across the Forest are expected to be prioritize by invasive treatment priority.
Timber Harvest on Non-Forest System lands	Preparation of THPs on private lands is expected to continue.

Past Activities and Events

For past projects, information from sales is incomplete. When the timber management information was converted from written records to computer-based data, some of the information was unavailable; for example the name of the sale might not have been listed although the acres and type of treatment and year completed were known. In other instances, the database contained the sale name, acres and year of accomplishment, but lacked the activity code.

The relevance of the incomplete data depends on what is lacking. The name of a particular sale would be of little value in evaluating the environmental effects of the harvest. While knowing the activity code (thinning, sanitation salvage, clear cut, etc) is beneficial, the same knowledge can be gained through field visits, interpretation of aerial photography, or both. Incomplete or missing information of these types is not relevant to determining significant

adverse impacts and the decision maker's ability to make a reasoned choice among alternatives. The effects of past timber harvest are accounted for in the assessment of the existing conditions to the extent that the past actions are still affecting particular resources being considered. The cumulative effects stemming from these activities are summarized by resource in Chapter 3.

Table 1 Current and Past Activities on National Forest System Lands from 1983

Activity	Current/ Incomplete Work	Past Activities														
		1983-1992	1993-1997	1998	1999	2000	2001	2002	2003	2004	2008	2009	2010	2011	2012	Grand Total
Animal Damage Control for Reforestation		118	279													398
Area release and weeding		95	4436	158		294		100	218	88						5389
Broadcast Burning - Covers a majority of the unit		51	0													51
Burning of Piled Material		723	92								146					960
Commercial Thin	6235	0	127			98	746	231								7437
Compacting/Crushing of Fuels	589	0	0								35				222	846
Control of Understory Vegetation	5543	0	0													5543
Fill-in or Replant Trees		151	1324	203	41	45		199				112				2074
Overstory Removal Cut (from advanced regeneration) (EA/RH/FH)		56	0													56
Patch Clearcut (EA/RH/FH)		0	127													127
Piling of Fuels, Hand or Machine	5110	0	0				30							88		5228
Plant Trees		2068	1399		219	177	199		107	35	112					4316
Precommercial Thin	6089	95	805	507	238	300	35	35							87	8192
Rearrangement of Fuels		0	0						129							129

Activity	Current/ Incomplete Work	Past Activities														
		1983-1992	1993-1997	1998	1999	2000	2001	2002	2003	2004	2008	2009	2010	2011	2012	Grand Total
Salvage Cut (intermediate treatment, not regeneration)		149	0								114					262
Sanitation (salvage)		285	0													285
Single-tree Selection Cut (UA/RH/FH)		32	0		434	174										640
Site preparation for planting		607	198		158	224	139									1323
Site Preparation for Planting - Burning		191	160			117										467
Site Preparation for Planting - Chemical		0	146													146
Site Preparation for Planting - Mechanical		1256	460	94		56		36								1902
Stand Clearcut (EA/RH/FH)		2644	0													2644
Stand Clearcut (w/ leave trees) (EA/RH/FH)		0	12	56												68
Stand clearcutting - Salvage Mortality		16	0													16
Thinning for Hazardous Fuels Reduction	77	0	0													77
Tree Release and Weed	38	2632	277			122	99		99			112	48		328	3755
Watershed Resource Non-Structural Improvements Erosion		0	0						34							34
Grand Total	**23682**	**11164**	**9841**	**1018**	**1090**	**1608**	**1249**	**602**	**587**	**123**	**406**	**224**	**48**	**88**	**637**	**52367**

Commercial and Non-commercial Harvest Moderate to Intensive Harvest • Overstory removal cut (from advanced regeneration) • Patch clearcutting (EA/RN/FH) • Tractor or Rubber Tired Skidder - Stand clearcutting - Salvage Mortality, Stand clearcutting (w/res), Stand clearcutting, Cable - Stand Clearcutting(EA/RH/FH) Low to Moderate Harvest • Commercial Thinning • Sanitation (salvage), Salvage cut (intermediate treatment, not regeneration) * Not all acres identified may have received treatment as large areas were identified for salvage treatments that only removed select trees across the area. • Precommercial thinning - individual or selected trees	**Effects of Commercial and Non-Commercial Harvest Treatments** Regeneration Harvest had the general objective to favor development of desired species, and generally encourage long-lived seral species (ponderosa pine, Douglas-fir, and sugar pine) Thinning Harvests had the general objective to stimulate growth of remaining trees, increase total yield, and utilize trees that are suppressed by crowded conditions. Thinning generally encourages more shade tolerant species such as white fir and cedar although selection for retention of desired species would favor those species persistence on the site. Sanitation and Salvage cutting removed trees that would have otherwise contributed to snag levels within stands.
Planting Fill-in planting without concurrent site preparation, Full planting without concurrent site preparation	**Effects of Planting** Planting activities typically favored ponderosa pine, sugar pine, and Douglas-fir.
Other Vegetation Treatments and Animal Damage Control Animal Damage Control for Reforestation Area release and weeding, Individual tree release and weeding, Release or weeding need addition, Chemical Site Preparation. Pesticide Application Burning - Burning of Piled Material, Burning site preparation for planting, Broadcast burning. Site preparation for planting (mechanical) Piling of Fuels, Hand or Machine, Rearrangement of Fuels	**Effects of Other Vegetation Treatments and Animal Damage Control** Site preparation, prescribed burning and area release treatments modified and delayed brush, grass, and forb composition within stands and encouraged tree growth for a limited time. The effect on species composition would have been an increase in seedling survival of desired species.

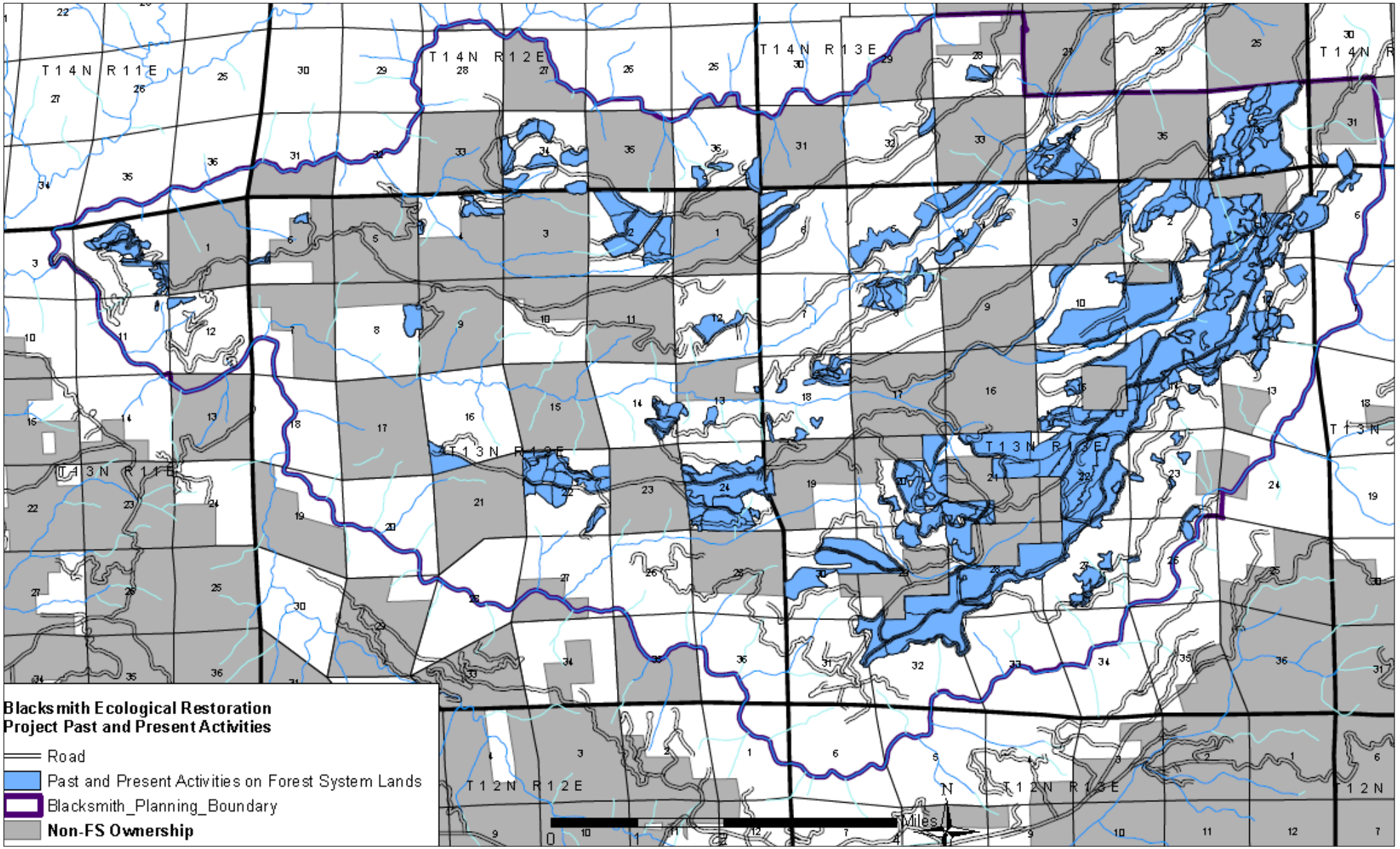
Table 2Forest Service Project Activities since 1983 by project, where name is known

Activities by project	Acres
BAUMANN	
Animal Damage Control for Reforestation	95
Area release and weeding	335
Burning of Piled Material	25
Fill-in or Replant Trees	31
Plant Trees	437
Precommercial Thin	95

Activities by project	Acres
Sanitation (salvage)	8
Site preparation for planting	8
Site Preparation for Planting - Burning	18
Site Preparation for Planting - Mechanical	398
Stand Clearcut (EA/RH/FH)	418
Tree Release and Weed	403
BEAR FIR TS	
Fill-in or Replant Trees	44
Single-tree Selection Cut (UA/RH/FH)	30
BIG CAT SSTS	
Single-tree Selection Cut (UA/RH/FH)	4
BIG GRIZZLY FOREST HEALTH AND FUELS REDUCTION PROJECT	
Commercial Thin	6235
Compacting/Crushing of Fuels	811
Control of Understory Vegetation	5543
Piling of Fuels, Hand or Machine	5198
Precommercial Thin	6104
Tree Release and Weed	366
CHAIX CABLE	
Area release and weeding	18
Broadcast Burning - Covers a majority of the unit	17
Plant Trees	19
Site Preparation for Planting - Mechanical	19
Stand Clearcut (EA/RH/FH)	19
Tree Release and Weed	18
CLAUSSENIUS	
Salvage Cut (intermediate treatment, not regeneration)	1
DEERVIEW 73 BO	
Area release and weeding	30
Plant Trees	30
Tree Release and Weed	7
EDSON CABLE	
Fill-in or Replant Trees	40
Plant Trees	111
Site Preparation for Planting - Mechanical	7
FRENCH HOUSE CBL	
Plant Trees	31
Sanitation (salvage)	31
Site Preparation for Planting - Mechanical	31
Tree Release and Weed	61
Burning of Piled Material	5

Activities by project	Acres
Stand Clearcut (EA/RH/FH)	5
LONG CANYON	
Animal Damage Control for Reforestation	10
Area release and weeding	114
Burning of Piled Material	49
Plant Trees	95
Site Preparation for Planting - Chemical	40
Site Preparation for Planting - Mechanical	95
Stand Clearcut (EA/RH/FH)	95
Tree Release and Weed	78
LOWER LONG TS	
Commercial Thin	728
PARSLEY CABLE	
Fill-in or Replant Trees	99
PICKLE TS	
Area release and weeding	6
RAILROAD TS	
Area release and weeding	88
Plant Trees	143
Site Preparation for Planting - Mechanical	36
RALSTON MINE	
Animal Damage Control for Reforestation	85
Area release and weeding	260
Burning of Piled Material	56
Fill-in or Replant Trees	42
Plant Trees	239
Site Preparation for Planting - Mechanical	222
Stand Clearcut (EA/RH/FH)	222
Tree Release and Weed	234
SAWPIT CABLE	
Fill-in or Replant Trees	56
Stand Clearcut (w/ leave trees) (EA/RH/FH)	56
TANNER'S POINT CABLE	
Area release and weeding	75
Plant Trees	66
Site Preparation for Planting - Burning	43
TRANSYLVANIA FIRE SALVAGE	
Burning of Piled Material	146
Compacting/Crushing of Fuels	35
Precommercial Thin	72
Salvage Cut (intermediate treatment, not regeneration)	112

Activities by project	Acres
Thinning for Hazardous Fuels Reduction	77
TRANSYLVANIA REFORESTATION PROJECT	
Fill-in or Replant Trees	112
Plant Trees	112
Tree Release and Weed	160
WALLACE CBL 93 BO	
Site Preparation for Planting - Mechanical	37
Stand Clearcut (EA/RH/FH)	155
PROJECT NAME NOT IDENTIFIED	
Animal Damage Control for Reforestation	209
Area release and weeding	4462
Broadcast Burning - Covers a majority of the unit	34
Burning of Piled Material	679
Commercial Thin	474
Fill-in or Replant Trees	1650
Overstory Removal Cut (from advanced regeneration) (EA/RH/FH)	56
Patch Clearcut (EA/RH/FH)	127
Piling of Fuels, Hand or Machine	30
Plant Trees	3035
Precommercial Thin	1921
Rearrangement of Fuels	129
Salvage Cut (intermediate treatment, not regeneration)	149
Sanitation (salvage)	247
Single-tree Selection Cut (UA/RH/FH)	605
Site preparation for planting	1316
Site Preparation for Planting - Burning	406
Site Preparation for Planting - Chemical	106
Site Preparation for Planting - Mechanical	1057
Stand Clearcut (EA/RH/FH)	1659
Stand Clearcut (w/ leave trees) (EA/RH/FH)	12
Stand clearcutting - Salvage Mortality	16
Tree Release and Weed	2427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Blacksmith Ecological Restoration
Project Past and Present Activities
Road
Past and Present Activities on Forest System Lands
Blacksmith_Planning_Boundary
Non-FS Ownership
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Assumptions and methods used in gathering private land information: Private land owners have no duty or obligation to report timber harvest activities to the Forest Service. Data in the following table was summarized from CAL FIRE's Forest Practice Geographical Information System (GIS) available for download at ftp://ftp.fire.ca.gov/forest. (1/29/2013). This data includes activities since 1995. Data for activities prior to 1995 are reflected in the current conditions of the project area.

Activity	Clearcut	Commercial Thin	Group Selection	Sanitation Salvage	Seed Tree Removal Cut	Selection	Shelterwood Removal Cut	Shelterwood Removal/ Commercial Thin	Grand Total
1995	149				16		243		**469**
1996	129					20			**149**
1998	75					9	103		**187**
1999							108		**108**
2001						576			**576**
2002	216								**1107**
2003			602	17	44		457		**1120**
2004	68		1230				2204	116	**4015**
2005	42	29	30			59	475		**689**
2006	454	48				3			**505**
2007	111		339	32		20	15		**543**
2008	121		388		31		146		**724**
2009		13	124			29			**173**
2010	108		100	5					**213**
2012	411		207		12				**629**
Grand Total	**1885**	**90**	**3020**	**54**	**103**	**716**	**3751**	**116**	**11207**

Effects of Commercial Harvest Treatments

- Regeneration Harvest had the general objective to favor development of desired species, and generally encourage long-lived seral species (ponderosa pine, Douglas-fir, and sugar pine). Objectives could have also been economic.

- Thinning Harvests had the general objective to stimulate growth of remaining trees, increase total yield, and utilize trees that are suppressed by crowded conditions. Thinning generally encourages more shade tolerant species such as white fir and cedar although selection for retention of desired species would favor those species persistence on the site.

- Sanitation and Salvage cutting removed trees that would have otherwise contributed to snag levels within stands

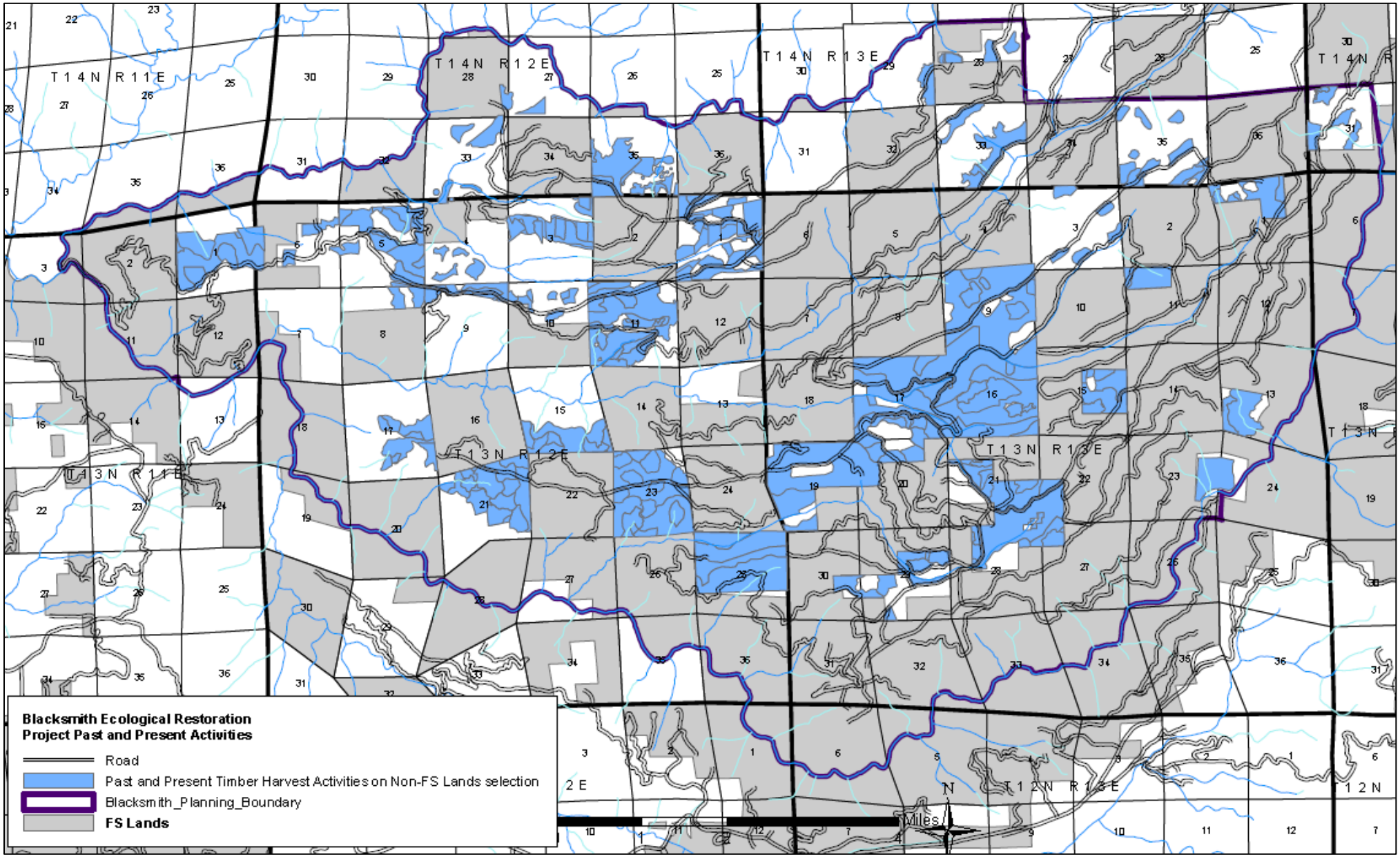

Figure 1. Timber Harvest Plan Activities on Non-Forest System Lands from 1995-2012